

Research and Strategy

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The key to a successful automated buy-side trading desk is a well-connected order management system

Straight Through Processing (STP) has become a top priority for buy-side institutions facing pressure to reduce transaction and processing costs, manage operational risk and trade fails, and convert to T+1 settlement by June 2004. According to the Tower Group, the global securities industry will spend \$19.1 billion from 2001 to 2004 on global STP projects.

To understand the challenges institutions face and to determine where they are likely to focus their attention, let's look at the anatomy of

a trade (see figure 1). Effective STP should automate and link every piece of the process, starting with pre-trade analytics, moving through trading, and continuing into the back office and operations. Over the past few years many institutions have benefited from a surge in the amount of assets under management. Naturally, this has led to a significant increase in the trading volume for the trading desk. The emergence of online retail investors and day traders has fragmented liquidity and significantly lowered the average trade size. These

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trends have resulted in an exponential increase in the number of trades being processed by institutions, which, in turn, has placed a huge strain on trading desks and back offices.

Executing and processing an ever-increasing number of trades is only part of the challenge.

Institutions are recognizing that trading is not just a matter of routing orders to brokers and receiving executions back. Execution cost analysis by organizations like Plexus (the famous iceberg of transactions costs) has helped institutions better understand the value of equipping traders with better tools to help them seek out superior executions. Changes like decimalization and SuperSoes require trading desks to adopt new trading technologies to trade more effectively. Inflexible solutions can limit the trading desk's ability to react to such changes. Savings go far beyond lower commissions; they can significantly impact performance. Based on these factors, many institutions

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The Anatomy of a Trade

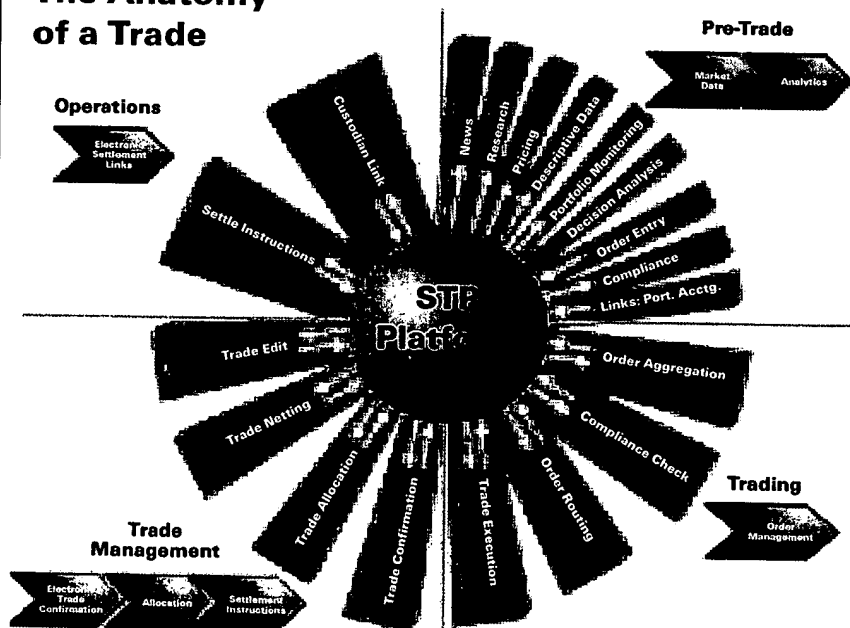


Figure 1.

(cont'd on page 3)

Is the Fed done? Fed watching and gauging market expectations using the BLOOMBERG PROFESSIONAL™ service

"You observe a lot by watching" —Yogi Berra

On March 20, 2001, The Dow Jones Industrial Average fell by 238.35 points largely due to disappointment that the Federal Reserve had cut short-term interest rates by only 50 basis points (bps). Reportedly, the market had been expecting rates to be lowered by 75 basis points. Was the decidedly negative market reaction to the Fed a surprise given that 34 percent, or 17 out of 50, of economists polled by BLOOMBERG NEWS™ had expected rates to be cut by 75 basis points? Or was it that even though only 34 percent of economists expected a large rate cut, a majority of market participants priced in larger rate cuts as well?

There are several functions on the BLOOMBERG PROFESSIONAL™ service that make "Fed watching" relatively easy. The **FOMC <Go>**

Option 9 provides daily top news stories concerning the Fed. And, so you won't be caught off guard by comments from Fed officials between meetings, **FED <Go>** provides a calendar of Federal Reserve releases, including speeches by the regional bank presidents, members of the Board of Governors, and Chairman Greenspan himself. These useful BLOOMBERG PROFESSIONAL service functions give traders information from which to form their own opinions and expectations.

Market expectations can be derived by following the price action of the monthly federal funds futures contract traded on the Chicago Board of Trade (**FFA <Cmdty> CT <Go>** in figure 2).

Based on the average rate U.S. banks charge each other for overnight loans during the delivery month, the federal funds futures contract embodies expectations of interest rate changes in the price. For instance, if the market did not expect a change in interest rates from the current 4.00 target, the contract price would be expected to trade at a price around 96.00, or 4.00 percent. If the market expected a lowering of the target funds rate from 4.00 to 3.75 percent, then the month contract would have an associated price of around 96.25.

Careful analysis of the federal funds contract series gives an indication of market sentiment and expectations. Since 1994, when the Fed adopted a policy of openly disclosing the changes in their interest rate

targets, markets have generally expected, and the Fed for the most part has disclosed, changes in interest rates at the regularly scheduled

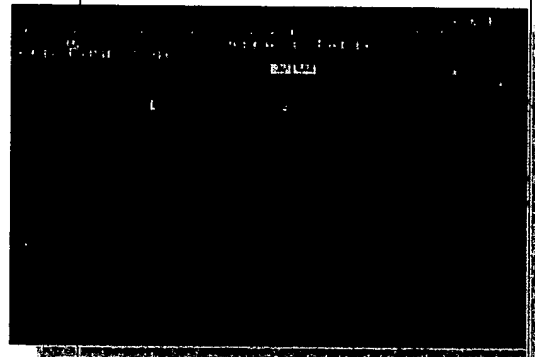


Figure 2.

Federal Open Market Committee (FOMC) meetings. What happened on March 20? What was the market expecting from the Fed that when it cut interest rates only 50bps it elicited such a negative reaction?

Figure 2 shows the closing prices of the monthly federal funds futures contracts on March 19, 2001, the day preceding the March 20 FOMC meeting. From **FOMC <Go>**, traders knew that following the March meeting the Fed had scheduled May 15, June 27, and August 21 as the next three FOMC meeting dates. Thus, an accurate indication of market sentiment for the March 20 interest rate change would be embodied in the price of the April and May contracts. The April contract closed at a rate of 4.865 percent (dollar price of 95.135). **FDTR <Index> GP <Go>** shows that the then current federal funds target was 5.50 percent. If the Fed decided to move interest rates by 50 or 75 basis points, the new federal funds target would be 5.00 or 4.75 percent, respectively. With April trading at

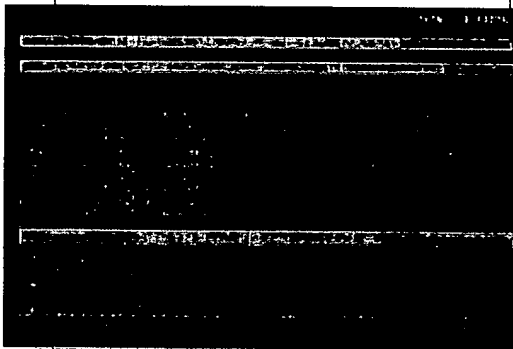


Figure 1.

function shown in figure 1 provides a table of scheduled Fed meetings, history of past interest rate actions, the Fed's stated expectations for future economic performance, and links to other related Fed watching options and functions. For instance, option 10 gives traders the results of polls taken by BLOOMBERG NEWS concerning economist expectations for future Fed interest rate targets.

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Is the Fed done? *(cont'd from page 2)*

4.865 percent, clearly the entire market was looking for at least a 50bps cut. But the April contract had priced in a 63.5bps cut, implying that the market was placing a 54 percent chance that the Fed would reduce interest rates by at least 75 basis points.

Going into the announcement, traders knew that with the market placing a 54 percent probability of a 75bps cut, market reaction was going to be volatile. Since the Fed only cut rates by 50 basis points, the market was disappointed and proceeded to pummel stock prices. Prior to the Fed's announcement, the Dow was trading near the high of the day, 10,019. Following the announcement at 2:15 p.m., the Dow sold off and closed at the day's low of 9,720. Stocks continued to be weak for the next three days.

Although disappointed by the outcome of the Fed's March 20 meeting, the market continued to expect more aggressive rate cuts in the coming meetings. On March 25, the May federal funds contract closed at 95.35. With the Fed meeting on May 15, participants expected federal funds to average 4.65 percent over the month. With a target of 5.00 percent, May 16 to 31 would have to average 4.28 percent in order for the weighted average of the rates to reach the average of 4.65 percent implied in the contracts price. This percentage (X) is determined from solving the following formula:

$$5.00(16/31) + X(15/31) = 4.65\%$$

In other words, Federal funds would trade at 5.00 for the first half of the month (May 1 through May 15) and then at the new target percentage (X) for the remanding 15 days of the month. The market was clearly expecting the Fed

to cut rates by at least 75 basis points at the May 15 meeting. Greenspan and the committee, though, surprised the market with a 50bps cut in interest rates on April 18.

There are five FOMC meetings left this year, with the June 27 meeting coming up next. Figure 3 shows the federal funds futures contract table as of the June 14 close. The table clearly shows that the market expects further rate reductions, but the Fed is close to being done. With September, October, and November trading close to 3.60, the market is expecting the Fed to cut rates 25 to 50 basis points before it is through cutting rates. In fact, indications in future months (like January 2002 at 4.00) suggest that the Fed will cut one more time and then start to raise rates. With July trading at 96.305 or 3.695 percent, the market is placing a probability that the Fed will cut rates by at least 25 basis points with a slightly greater than 50 percent chance (61 percent) that they will be more aggressive and cut rates by 50 basis points. This is about what the poll of economists survey on **FOMC <Go>** is expecting.

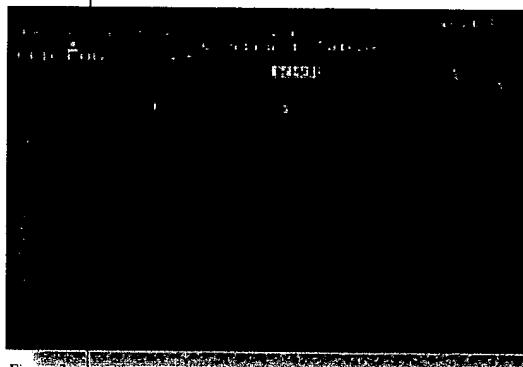


Figure 3.

Although it is impossible to get into Alan Greenspan's mind, Bloomberg functions and analysis of federal funds futures contracts help shed light on the market's expectations.

Automated buy-side trading desk

(cont'd from page 1)

trying to automate are focusing their attention on trading and order management (lower right quadrant of figure 1) when devising solutions.

At the heart of most large buy-side trading desks is a proprietary or third-party order management system (OMS). Small to midsize firms that may currently be operating in a more manual fashion are increasingly looking to deploy such an OMS. Automation without a central OMS is probably close to impossible.

Trades start with the portfolio manager, who, after completing his/her pre-trade analysis, typically enters orders directly into the OMS. After a compliance check, the orders hit the OMS blotter on the trading desk. These trades can either be routed externally to various brokers or market centers for execution, or worked internally over an ECN. Trade executions then need to be received back, confirmed, allocated, and sent to the back office for settlement. How much of this process happens electronically depends on the extent to which all of the brokers and ECNs are electronically linked to the OMS. The types of links installed, however, can be critical in determining what capabilities the traders will have. "Vanilla" external links may amount to no more than basic order routing and may limit the trader's ability to work an order internally over an ECN and add value to the trade.

As an innovative ECN that provides a sophisticated global electronic platform with innovative tools and execution algorithms, BLOOMBERG TRADEBOOK® is ideally suited to providing the necessary advanced trading capabilities with full connectivity. We are

and

International Focus

Indications of interest and trade advertisements are no longer optional for international traders

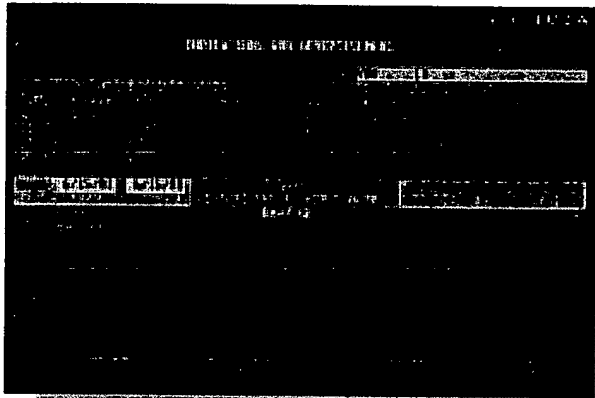


Figure 1: IOIA Displays all indications and ranks all trade advertisements sent from broker-dealers for a selected equity. Type (ticker) <Equity> IOIA <Go>.

International traders faced with a changing marketplace are relying on more tools to enhance their performance. Among them are Indications of Interest (IOIs) and advertisements. These tools provide traders with up-to-the-minute information on market liquidity, broker buy/sell interest, and trade details for all global markets. The BLOOMBERG PROFESSIONAL™ service, with connections to brokers in over 65 different countries, allows global traders to access and act on this information dynamically, right from their Bloomberg screens.

Indications of Interest allow buy-side traders to access larger pools of liquidity and realize better executions, and they give sell-side traders exposure to a greater client base, increasing trading activity. Advertisements help buy-side traders to identify specific potential buyers and sellers in an efficient and anonymous manner.

For international traders, IOIs are an invaluable tool in determining

available liquidity in global markets, as well as locating potential trading partners. As worldwide markets continue to become more integrated, the ability to monitor market liquidity and trading activity on a global scale becomes more important.

International

traders can no longer afford to focus on one specific country or exchange for a complete market picture.

Currently, approximately 440 brokers are using the BLOOMBERG PROFESSIONAL service to send indications in Europe, with another 198 brokers in Asia and 46 in Australia. Simply put, a single connection to the BLOOMBERG PROFESSIONAL service provides access to a vast global network of broker information.

Bloomberg's Indications and Advertisement function is both powerful and easy to use. It gives traders the ability to filter information by security, indication type, and sell-side broker. Sell-side traders can easily post pre-trade indications of interest and trade adver-

tisements over the Bloomberg system. This functionality is available at no extra cost to Bloomberg customers and

IOIs provide traders with up-to-the-minute information on market liquidity, broker buy/sell interest, and trade details for all global markets.

can be integrated with other trading functionalities such as trader work-sheets and alerts.

Combine the benefits of global connectivity, live IOIs, and advertisements with global electronic trading on BLOOMBERG TRADEBOOK® and the power of the BLOOMBERG PROFESSIONAL service, and you now have one secure, fully integrated global platform for your pre-trade, trading, and post-trade needs.



Figure 2: IOIR Single-security recap function that will recap today's and prior 20 days' information. Type (ticker) <Equity> IOIR <Go>.

and

Automated buy-side trading desk *(cont'd from page 3)*

providing numerous interfaces to both proprietary and third-party OMSs.

These interfaces are typically based on the industry-standard Financial Information Exchange (FIX) protocol, and come in several forms. The more traditional interface that resembles basic external order routing is called a two-way interface. Here traders can route orders to us directly from their OMS blotter and receive executions back in real time. The basic goal of automation is achieved and clients are able to use BLOOMBERG TRADEBOOK to access all points of liquidity. However, this type of linkage only supports limit, reserve, and market/bang orders.

The traditional two-way link may be insufficient for clients looking to fully deploy our innovative tools and technologies, such as discretion, pegging, trigger, and broker booth. For these clients we offer other solutions. The first is a one-way interface. Here traders trade directly from our front-end system and have full access to all of our advanced tools and execution algorithms. Execution and position information is automatically sent back to the OMS in real time. Unfortunately, while the one-way interface can be a great solution, it's not always supported by a firm's OMS.

To solve the problem for OMSs that can't accommodate a one-way interface, we soon plan to offer a variation on the two-way interface. Here orders will be routed from the OMS to a special "staging blotter" in BLOOMBERG TRADEBOOK. Once an order is in the staging blotter a trader will be able to take control and use all of our advanced tools and functionality. Executions will then flow back to the OMS via the two-way link.

Institutions typically build their own proprietary OMS or purchase one from a third-party vendor. Our integration team can work closely with firms that have built or are considering building a proprietary FIX-compliant OMS to design a custom solution that can incorporate one-way and/or two-way interfaces. For firms that have deployed a third-party OMS or use a FIX-compliant

to our clients.

As institutions strive to automate their trading desks and move closer to Straight Through Processing, we believe they should seek flexible solutions that enable their trading desks to effectively seek better executions. The liquidity landscape is changing rapidly and traders need more than vanilla order routing to execute trades

Table I
Order Management System Connectivity

| | Domestic 1-way | Domestic 2-way | International 1-way | International 2-way |
|---|-------------------|-------------------|------------------------|------------------------|
| Antares | Yes | Yes | In development | In development |
| Charles River | Not applicable | Yes | Not applicable | In development |
| Eze/Castle | Yes | Yes | In development | In development |
| LandMark/ LongView 2000 | Not applicable | Yes | Not applicable | Yes |
| MacGregor Financial Trading Platform (MFTP) | Yes | Yes | In development | In development |
| Predator | Yes | Yes | In development | In development |
| Bloomberg Trade Order Management System | Yes | Yes | In development | In development |

Table II
FIX-Compliant Order Routing System Connectivity

| | Domestic 1-way | Domestic 2-way | International 1-way | International 2-way |
|---------------------------------------|-------------------|-------------------|------------------------|------------------------|
| Transaction Network Services (TNS) | Yes | Yes | Yes | Yes |
| TradeRoute/ AutEx Connect | In development | In development | Yes | Yes |
| MacGregor FIX Network (MEN) | Yes | Yes | In development | In development |
| Bloomberg Order Routing | Yes | Yes | Yes | Yes |

order routing engine, we can work with the OMS or routing engine to create both types of interfaces. Two-way interfaces generally exist with all the major OMS providers, while the more advanced one-way interfaces exist with some (see tables I and II for specific details). Our goal is always to provide both connectivity and advanced trading functionality

effectively. With advanced FIX-based connectivity between your OMS and BLOOMBERG TRADEBOOK, you can benefit from the efficiencies of a more automated trading desk while still enabling your traders to leverage our global electronic trading platform and all of its innovative tools.

Equity Focus

New intraday graphing options

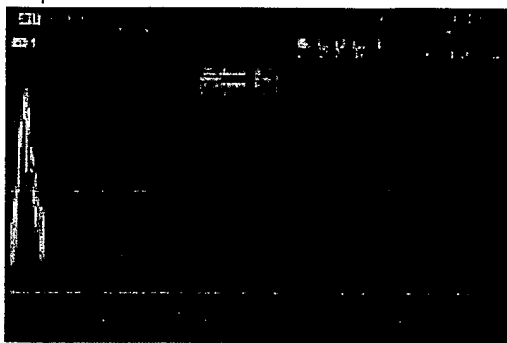


Figure 1.

GIPS—Intraday Scrunch Chart

Bloomberg's powerful intraday charts allow for several different styles of analysis. Users have always taken advantage of the intraday price graph (**GIP <Go>**) to monitor real-time movement in any security. And, by allowing you to view intraday performance for as many as 30 days, the charts can be used to detect deviations from trends. Now, with the enhanced GIPS function, it becomes easy to detect intraday trends as well as periods of high volatility or lulls. The new scrunch charts will chart the price in a less compressed format, gradually "scrunching" old data to the left as the trading day progresses.

For many traders, the first 30 to 60 minutes of the trading day is the most important. Traditionally, volatility as well as volume is high

during this period, and traders are looking for a good entry or exit point. During that time it is crucial for a trader to be able to spot an early intraday trend. Using the scrunch charts (**GIPS <Go>**) you see the information in a format that allows you to better determine trends and strategic early entry or exit points. This is illustrated in figure 1, where we compare the GIPS graph against a standard GIP graph at 30 minutes into the trading day for Cisco (**CSCO <Equity> <Go>**). Although both charts are plotting the same price information, it is clear that the scrunch chart provides a lot more color during the early trading.

GIPW—Intraday Sliding Chart

Traders rely on both intraday and historical price charts, but they often simply want a snapshot of how the stock has performed during the period immediately preceding or surrounding their trade. Bloomberg's new sliding charts (**GIPW <Go>**) will give traders quick and easy

access to this information by constantly "sliding" to display the most recent half hour of trading in a full-page format. Again using Cisco as an example, the trader can use the GIPW to view the most recent trends and price fluctuations (figure 2). When used in conjunction with GIP and GIPS, this chart allows traders to make the most informed decisions throughout the trading day.

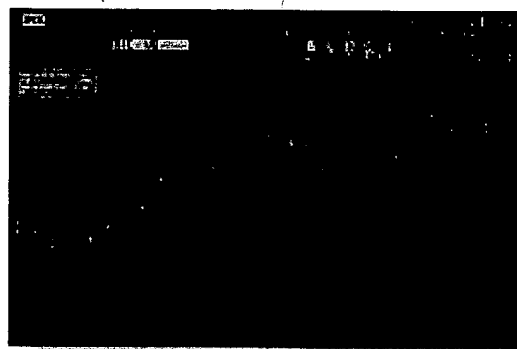


Figure 2.

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